

STANDARD FORM NO. 64

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TO : The Files - Contract 111-13224-9

DATE: 31 December 1959

FROM

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SUBJECT: Trip Report - Delivery of Propane Burning Thermoelectric Generator

1. On 22 December 1959 a trip was made to [redacted] to receive the BC-13 thermoelectric generator. Present for discussions were:

[redacted]

2. The BC-13 thermoelectric generator incorporates 99 pairs of elements arranged in layers radially about a central core containing a heating source of burning propane gas. The thermoelectric elements are cylindrical ingots of lead telluride material doped to produce N and P type semi-conductors. One N and one P type element constitute a couple and the 99 couples are connected electrically in series. A propane burning radiant-type burner is used as the heating source and metal fins are used to control the cold side temperature. The open circuit voltage of the BC-13, when operated with a hot junction temperature of 1100°F and a cold temperature of 160°F, is 26 volts DC. The voltage across a matched load is 13.3 volts DC with a load current of 635 ma. The BC-13 has a power to fuel ratio of 208 watt hours per pound of fuel giving a net efficiency of 3.3%. The generator, including base, stand, weatherproofing material, and fins, weighs approximately 22 lbs., excluding the fuel. The BC-13 will operate approximately 15 to 20 hours on a pound of propane gas.

3. [redacted] were given our requirement for the need of a thermoelectric generator to operate on all types of fires. They agreed to give this problem some thought and have a discussion sometime in January as to the feasibility of such a generator. If it is possible to develop such a generator, [redacted] indicated [redacted] would be happy to submit a proposal for such a development.

[redacted]

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